



# PU-515PL-TX & RX

HDBaseT™ LITE Extender Set with PoE & 2-way IR

**OPERATION MANUAL**



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Version 1.1

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## SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

## REVISION HISTORY

VERSION NO.	DATE	SUMMARY OF CHANGE
v1.01	25/10/2013	First release
v1.02	22/08/2019	Updates to Specifications

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## 1. INTRODUCTION

The HDBaseT™ HDMI over single CAT5e/6 with bi-directional IR, RS-232 & PoC Transmitter and Receiver set can make your home or office set-up more efficient and easy to use. Uncompressed video and audio can be transmitted up to 70 metres at 1080p or 40 metres at 4K. with the PoC function and added benefit of controls through the built-in RS-232 and IR ports. This family design of HDBaseT technology allows a full usage of HDMI and controls over CAT5e/6/7.

## 2. APPLICATIONS

- /// Domestic HDMI installations
- /// University lecturing systems
- /// Retail showroom systems
- /// Conference presentation and control

## 3. PACKAGE CONTENTS

### *Transmitter Package*

- /// 1xHDMI over Single CAT5e/6/7 Transmitter with PoC
- /// 1xIR Blaster
- /// 1x3.5 mm Mini-jack to RS-232 Female Cable
- /// 24 V/1.25 A DC Power Adaptor
- /// Operation Manual

### *Receiver Package*

- /// 1xHDMI over Single CAT5e/6/7 Receiver with PoC
- /// 1xIR Extender
- /// 1x3.5 mm Mini-jack to RS-232 Male Cable
- /// Operation Manual

## 4. SYSTEM REQUIREMENTS

HDMI source equipment such as a DVD or Blu-ray player and HDMI equipped display (TV or monitor). HDMI and CAT5e/5/7 connection cables.

## 5. FEATURES

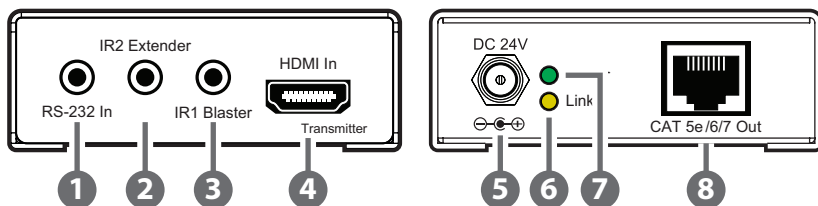
- /// HDMI 1.x and DVI 1.0 compliant
- /// HDCP compliant
- /// Supports HDMI 3D and 4K x 2K features
- /// Supports HDCP repeater and CEC bypass
- /// Supports distance up to 70m/229ft at 1080p and 40m/131ft at 4K through CAT5e/6/7 cable
- /// HDMI input resolutions up to 4K@60Hz (YUV 4:2:0, 8-bit) or 4K@30Hz (YUV 4:4:4, 8-bit)
- /// Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, and Bitstream over HDMI
- /// Supports HDBaseT Lite Technology
- /// Installation friendly

### Note

1. *This system was tested with CAT-6E/23AWG cables, results may vary with cables of a different specification.*
2. *The PoC function is designed for powering compatible receiver units only—do not use with non-PoC receivers or receivers of another brand.*

## 6. OPERATION CONTROLS AND FUNCTIONS

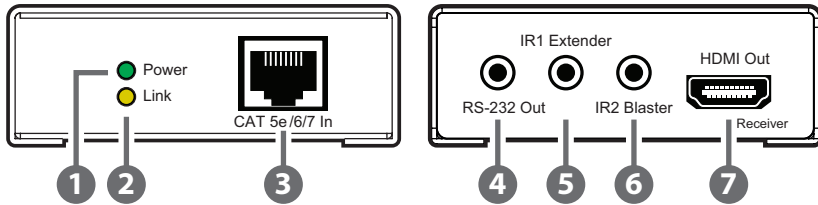
### 6.1 Transmitter Front and Rear Panels



- 1 **RS232 In:** Connect to a PC/laptop or RS-232 control device (with supplied 3.5 mm mini-jack to D-sub 9-pin adaptor) for the transmission of RS-232 commands.
- 2 **IR2 Extender:** Connect an IR extender cable for IR signal reception. Ensure that remote control being used is within the direct line-of-sight of the IR extender.
- 3 **IR1 Blaster:** Connect an IR blaster cable for IR signal transmission. Place the IR blaster in direct line-of-sight of the equipment to be controlled.
- 4 **HDMI In:** Connect to the HDMI source equipment such as a DVD or Blu-ray player.
- 5 **DC 24V:** Connect the 24V DC power supply to the unit and plug the adaptor into an AC outlet.
- 6 **Link LED:** The yellow LED will illuminate when both the input and output CAT5e/6/7 signals are connected. The LED will blink when there is an error with the transmission signal.
- 7 **Power LED:** This green LED will illuminate when the device is connected to a power supply.
- 8 **CAT5e/6 Out:** Connect to the receiver unit with a single CAT5e/6/7 cable for transmission of all data signals.



## 6.2 Receiver Front and Rear Panels

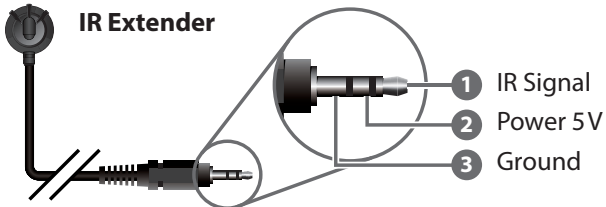
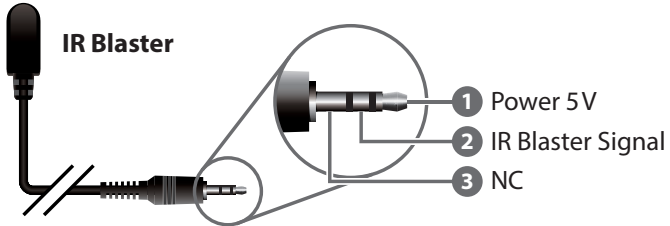


- 1 **Power LED:** This green LED will illuminate when the device is connected to a power supply.
- 2 **Link LED:** This yellow LED will illuminate when both the input and output CAT5e/6/7 signals are connected. The LED will blink when there is an error with the transmission signal.
- 3 **CAT5e/6 In:** Connect to the transmitter unit with a Single CAT5e/6/7 cable for transmission of all data signals.
- 4 **RS232 Out:** Connect to the device that is to be controlled (with the supplied 3.5mm mini-jack to D-sub 9-pin adaptor) by RS-232 commands
- 5 **IR1 Extender:** Connect an IR extender cable for IR signal reception. Ensure that the remote being used is within the direct line-of-sight of the IR extender.
- 6 **IR2 Blaster:** Connect an IR blaster cable for IR signal transmission. Place the IR blaster in direct line of sight of the equipment to be controlled.
- 7 **HDMI Out:** Connect to a HDMI equipped TV/monitor for display of the HDMI input source signal.

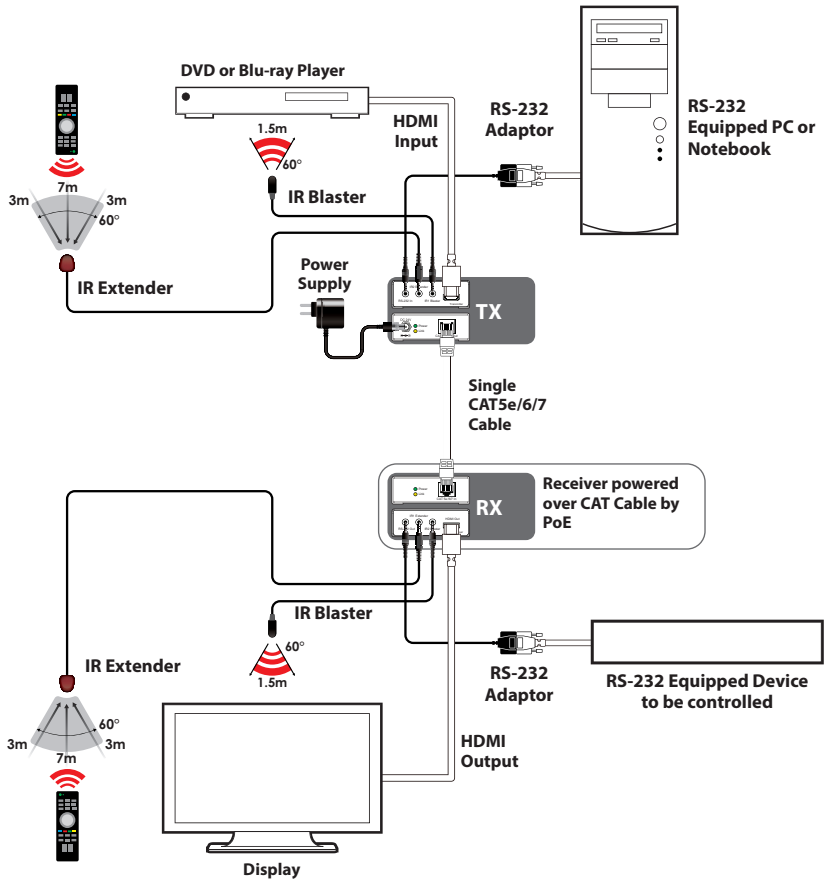
### 6.3 D-Sub 9-Pin Definitions

PIN	DEFINE TX/RX
1	N/C
2	TxD/RxD
3	RxD/TxD
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

### 6.4 IR Cable Pin Assignment



# 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

### 8.1 Technical Specification

<b>Video Bandwidth</b>	340 MHz/10.2 Gbps
<b>Transmitter</b>	
<b>Input</b>	1×HDMI, 1×IR Extender, 1×RS-232
<b>Output</b>	1×RJ45, 1×IR Blaster
<b>Receiver</b>	
<b>Input</b>	1×RJ45, 1×IR Extender
<b>Output</b>	1×HDMI, 1×IR Blaster, 1×RS-232
<b>IR Frequency</b>	30 – 50 kHz (30 – 60 kHz under ideal conditions)
<b>Baud Rate</b>	Up to 115200/sec
<b>Power Supply</b>	24V/1.25A DC (US/EU standards, CE/FCC/UL certified)
<b>ESD Protection</b>	Human Body Model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Dimensions</b>	71 mm(W) x 79 mm(D) x 23 mm(H)/each 71 mm(W) x 73.5 mm(D) x 23 mm(H)/each
<b>Weight</b>	120 g/TX, 126 g/RX
<b>Chassis Material</b>	Metal
<b>Silkscreen Colour</b>	Black
<b>Operating Temperature</b>	0 °C ~ 40 °C / 32 °F ~ 104 °F
<b>Storage Temperature</b>	-20 °C ~ 60 °C / -4 °F ~ 140 °F
<b>Relative Humidity</b>	20 ~ 90 % RH (non-condensing)
<b>Power Consumption</b>	3 W/TX, 6 W/RX

## 8.2 CAT5e/6/7 Cable Specification

Cable Length	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
<b>High Speed HDMI Cable</b>				
<b>HDMI Input</b>	15m	10m	5m	5m
<b>HDMI Output</b>	15m	10m	5m	5m
<b>Ethernet Cable</b>				
<b>Cat.5e/6</b>	60m		35m	
<b>Cat.6a/7</b>	70m		40m	

### 1080p (FHD Video)

- Up to 1080p@60Hz, 12-bit colour
- Data rates lower than 5.3Gbps or below 225MHz TMDS clock

### 4K30 (UHD Video)

- 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit colour
- Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>CAT5e</b>	Category 5 Cable
<b>CAT6</b>	Category 6 Cable
<b>CEC</b>	Consumer Electronics Control
<b>DVI</b>	Digital Visual Interface
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition multimedia Interface
<b>IR</b>	Infrared





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